UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,323	01/18/2002	Bruce H. Storm JR.	2000IP000092	7980

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EXAMINER
DAVIS, GEORGE B

ART UNIT	PAPER NUMBER
2121	

DATE MAILED: 05/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No. 10/051 323	Applicant(s) Storm e tal	
	Examiner George Davis	Group Art Unit 2121	

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ___Three___ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☐ Responsive to communication(s) filed on _____ .

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) ___1—16_____ is/are pending in the application.

   Of the above claim(s)_____ is/are withdrawn from consideration.

☐ Claim(s)_____ is/are allowed.

☒ Claim(s)___1—16_____ is/are rejected.

☐ Claim(s)_____ is/are objected to.

☐ Claim(s)_____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on_____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on_____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

   ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

   ☐ received.

   ☐ received in Application No. (Series Code/Serial Number)_____ .

   ☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

   *Certified copies not received:_____ .

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). ___2___   ☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892   ☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948   ☐ Other_____

Office Action Summary

DETAILED ACTION

Information Disclosure Statement (IDS)

The International Search Report (ISR) in IDS Form is not considered because all

art materials cited in ISR Form were included in IDS Form.

Claim Rejections - 35 U.S.C. § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by

Applicant's own admission.

Applicant admits training neural network with input parameters is well known in

the art (see specification, page 6, lines 20 and 21).

2.   (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-16 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by

Yang et al, "A Neural Network Approach to Predict Existing and in-Fill Oil Performance",

IEEE, IJCNN, July 2000.

As per claim 1, Yang discloses accumulating multiple data sets, each data set including at least one parameter influencing an output of the well system, and at least one parameter indicative of the well system output (pages 408, 409, 411 and 412) and training a neural network to model the output of the well system in response to the influencing parameters (pages 408, 409, 411 and 412).

As per claim 2, Yang discloses training the neural network utilizing the data sets, the trained neural network outputting the indicative parameters in response to input of the respective influencing parameters to the neural network (pages 408, 409, 411 and 412).

As per claim 3, Yang discloses in the accumulating step, the influencing parameters include valve positions (pages 408, 409, 411 and 412).

As per claim 4, Yang discloses in the accumulating step, the indicative parameters include production rates (pages 408, 409, 411 and 412).

As per claim 5, Yang discloses inputting an output of the trained neural network to a geologic model (pages 408, 409, 411 and 412).

As per claim 6, Yang discloses inputting an output of the geologic model to a financial model (pages 408, 409, 411 and 412).

As per claim 7, Yang discloses optimizing an output of the financial model in response to input of prospective influencing parameters to the neural network (pages 408, 409, 411 and 412).

As per claim 8, Yang discloses determining a respective value for each of the prospective influencing parameters whereby the output of the financial model in response to input of the prospective influencing parameters to the neural network is optimized (pages 408, 409, 411 and 412).

As per claim 9, Yang discloses training a neural network to model an output of the well system in response to at least one variable parameter of the well system (pages 408, 409, 411 and 412) inputting an output of the neural network to at least one valuing model (pages 408, 409, 411 and 412) and optimizing an output of the valuing model in response to input of the well system parameter to the neural network (pages 408, 409, 411 and 412).

As per claim 10, Yang discloses inputting multiple data sets to the neural network, each of the data sets including at least one known parameter influencing the well system output (pages 408, 409, 411 and 412).

As per claim 11, Yang discloses in the training step, the known influencing parameter is a position of a valve in the well system (pages 408, 409, 411 and 412).

As per claim 12, Yang discloses training the neural network to output at least one known parameter indicative of the well system output in response to the input to the neural network of the known influencing parameter (pages 408, 409, 411 and 412).

As per claim 13, Yang discloses in the training step, the known indicative parameter is a production rate in the well system (pages 408, 409, 411 and 412).

As per claim 14, Yang discloses in the inputting step, the at least one valuing

model includes a geologic model and a financial model (pages 408, 409, 411 and 412).

As per claim 15, Yang discloses in the inputting step, the output of the neural

network is input to the geologic model, and an output of the geologic model is input to

the financial model (pages 408, 409, 411 and 412).

As per claim 16, Yang discloses in the optimizing step, the well system parameter

is varied to maximize the valuing model output (pages 408, 409, 411 and 412).

3.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to George Davis whose telephone number is (703) 305-

3891. The examiner can normally be reached on Monday through Thursday from 7:00

am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Follansbee, can be reached on (703) 305-8498. The fax phone

number for the organization where this application or proceeding is assigned is (703)

746-7240.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703)

305-3900.

May 26, 2003

GEORGE B. DAVIS

PRIMARY PATENT EXAMINER